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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/084,828 | 02/28/2002 | Yuji Harada | KOJIM-449 | 3034 |
| 23599 | 7590 | 06/02/2004 | EXAMINER | |
| MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201 | | | THORNTON, YVETTE C | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1752 | |

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,828

Applicant(s)

HARADA ET AL.

Examiner

Yvette C. Thornton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2, 11-18, 21 and 22 is/are allowed.
- 6) ☒ Claim(s) 1, 3-10, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This is written in reference to application number 10/084,828 filed on February 28, 2002 and published as US 2003/0008231 A1 on January 9, 2003.

Response to Amendment

1. Claims 1-22 are currently pending. Claims 10-22 are newly added.
2. The amendment to instant claim 3 is sufficient to overcome the rejection of the said claim under 35 USC 112, 1st paragraph and 2nd paragraph.
3. The amendment to instant claims 1, 3-10 and 19-20 is sufficient to overcome the prior art references of Bonafini (US '397) and Ratkowski (US '573).

Response to Arguments

4. Applicant's arguments, filed December 15, 2003, with respect to the rejection(s) of claim(s) 1 and 4 under 35 USC 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Aoai et al. (US 2002/0061464 A1) as set forth below.

Claim Rejections - 35 USC § 102

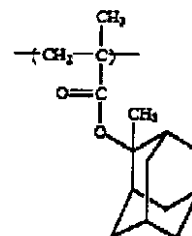
5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

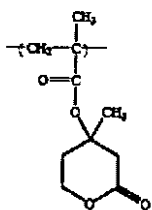
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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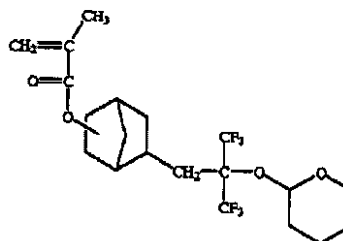
6. Claims 1, 3-6, 8- 10 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Aoai et al. (US 2002/0061464 A1). Aoai exemplifies the synthesis of Resin



(3), which comprises a terpolymer of 2-methyl-2-adamantane methacrylate

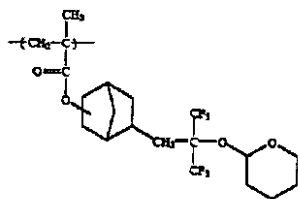


mevalonic lactone methacrylate

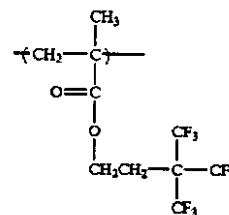


and monomer (b)

(synthesis ex. 3; p. 0284). It is the examiner's position that monomer (b) meets the limitations of claimed formula (1) wherein R6 is a substituted alkyl containing at least one fluorine atom. The comprising language of the instant claims does not prohibit the use of a substituted alkyl group. Further, 2-methyl-2-adamantane methacrylate meets the limitations of claimed formula (3-1) wherein R16 is the acid labile group 2-methyl-2-adamantane and mevalonic lactone methacrylate meets the limitations of claimed formula (8-1) wherein R30 is the adhesive group is mevalonic lactone. Aoai also exemplifies the use of Resin 30

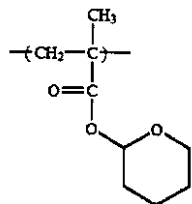


comprising monomer F30

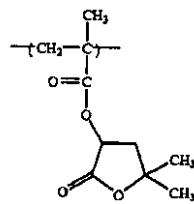


; monomer F50

;



monomer B2



; and monomer B12

(see table 3). It is the

examiner's position that monomer (F30) meets the limitations of claimed formula (1) wherein R6 is a substituted alkyl containing at least one fluorine atom. The comprising language of the instant claims does not prohibit the use of a substituted alkyl group. Further, monomer (F50) meets the limitations of claimed formula (7-1) wherein R29 is a fluorinated alkyl group and monomer (B12) meets the limitations of claimed formula (8-1) wherein R30 is the adhesive group is dimethyl butyrolactone.

The said resins were admixed with triphenylsulfonium nonaflate salt (photoacid generator, p. 0230-0257); dicyclohexylmethylamine (basic compound, p. 0263-0272); MEGAFAC R08 (surfactant, p. 0258-0262); and PGMEA (solvent, p. 0274-0275) to form a photoresist composition (p. 0304-0306). Additional resist compositions were prepared by varying the surfactant of the taught composition between W-1 to W-4. The said compositions were coated on a silicon wafer, dried by heating, imagewise exposed, post-exposure baked and developed to form a pattern (p. 0310-0317). Example 3 further exemplifies the composition comprising Resin (1) being exposed with at 157 nm (F2 laser) (p. 0327-0330).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoai et al. (US 2002/0061464 A1) as applied to claims 1, 3-6 and 8- 10 above, and further in view of Niinomi (US 6,090,518 A). Aoai teaches all the limitations of the instant claims except it fails to teach the use of a dissolution inhibitor as set forth in instant claim 7. Niinomi teaches that additives may be incorporated into resist compositions to an extent not to impair the effects of the given invention. Such additives include dissolution inhibitors, which are compounds that control the solubility of the non-exposed area of the alkali soluble resin in the alkali developer (c. 6, l. 61-c. 7, l. 67). It is the examiner's position that Niinomi serves to establish that the use of dissolution inhibitors is well-known and conventional in the art. One of ordinary skill in the art would have been motivated, as it is well known in the art as disclosed by Niinomi, to incorporate a dissolution inhibitor into the composition of Aoai in order to control the solubility of the non-exposed area in developer.

Allowable Subject Matter

9. Claims 2, 11-18 and 21-22 are allowed.
10. The following is an examiner's statement of reasons for allowance: the examiner failed to find any citable prior art which suggests and/or teaches the use of a polymer containing a group of claimed formula (1a) as set forth in independent claim 2.
11. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the

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issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

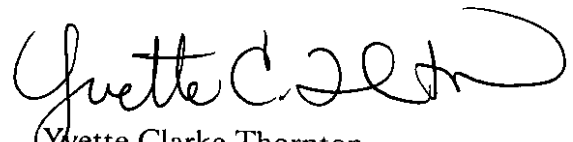
13. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 571-272-1336. The examiner can normally be reached on Monday-Thursday from 8:00 am to 6:30 pm.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff, can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Yvette Clarke Thornton
Patent Examiner
Art Unit 1752

yct
May 26, 2004